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Oats in Rations for Pigs from Weaning to Market Weight

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Recommendation on the use of oats in swine rations are based on research work conducted approximately 20 years ago. Since that time we have acquired much information on the value of vitamins, antibiotics and other nutrients in swine rations so today our hogs grow more rapidly on less feed per pound of gain.

During the past few years many new varieties of oats have been developed and the use of fertilizers has become more common. We have noted much oats that has a test weight of from 35 to 40 pounds per bushel and an above average crude protein content. Because of these factors and the importance of oats as a crop and a livestock feed, it seemed desirable to obtain more information on the feeding value of oats for growing-finishing swine.

Experimental Plan

Winter trial

Forty cross-bred pigs were divided into 4 comparable groups of 10 pigs each for this trial. All pigs were approximately 7 weeks of age and averaged 29.5 pounds when started on the experiment January 31, 1957. Each group of pigs was kept in a concrete floored pen equipped with an automatic waterer and all rations were self-fed in a connecting outside pen. The composition of the rations used is shown in table 1.

Summer trial

Forty-eight Duroc, Hampshire and Poland China pigs averaging approximately 40 pounds were allotted into 4 groups for the summer trial. Management procedures were the same as for the winter trial. The rations fed are shown in table 2. The ratios of corn to oats which were fed to the four groups were as follows: 1:0, 2:1, 1:1 and 1:2. The experiment was divided into two phases, phase 1 was from weaning to 100 pounds and phase 2 from 100 to 200 pounds.

Table 1. Composition of Rations Fed - Winter Trial

	To 100 lbs.		100-200 lbs.	
	Corn	Corn-Oats	Corn	Corn-Oats
Ground yellow corn	84.0	44.0	91.0	47.0
Ground oats	----	44.0	----	47.0
Soybean oil meal	10.0	7.4	5.0	3.0
Tankage	5.0	3.7	2.5	1.5
Steamed bone meal	0.7	0.7	1.0	1.0
Trace mineral salt	0.5	0.5	0.5	0.5
Vitamin-antibiotic [1/]	0.15	0.15	0.15	0.15

1/ Supplied 1 mg. riboflavin, 2 mg. calcium pantothenate, 4.5 mg. niacin, 5 mg. choline, 4.5 mcg. vitamin B_{12} and 5 mg. aureomycin (chlortetracycline) per pound of ration.

1/ Presented at South Dakota State College Swine Field Day, September 19, 1957.

Table 2. Composition of Rations Fed in Summer Trial

	Ratio of corn to oats in ration							
	1:0		2:1		1:1		1:2	
Phase	1	2	1	2	1	2	1	2
Ground yellow corn	84.0	91.0	58.0	62.0	44.4	47.0	30.0	31.7
Ground oats	----	----	29.0	31.0	44.4	47.0	60.0	63.3
Soybean oil meal	10.0	5.0	8.0	3.6	6.7	3.0	5.6	2.4
Tankage	5.0	2.5	4.0	1.8	3.3	1.5	2.8	1.2
Steamed bone meal	0.7	1.0	0.8	1.0	0.9	1.0	1.0	1.0
Trace mineral salt	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Vitamin-antibiotic[1]	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

1/ See Table 1.

Summary of Results

Winter trial

The results of feeding corn or corn-oats mixtures during different periods to growing-finishing pigs are shown in table 3.

The performance of all 4 lots was very satisfactory with only slight differences in rate of gain and feed efficiency between the various treatments. Pigs fed corn as the only cereal grain gained about 0.1 pounds per day faster than those fed equal parts of corn and oats during the initial feeding phase. During the period from 100 to 200 pounds in weight there was no difference in rate of gain between the two groups that were continued on the same grain mixture as was fed during the initial period. However, changing from corn to a corn-oats mixture at 100 pounds appeared to slow down gains while changing from a corn-oats mixture to corn resulted in increased gains.

In this trial feed costs per unit of gain favored the groups fed corn for one period and corn-oats for one period. This was due entirely to the feed required per unit of gain as the ingredient costs of the corn or corn-oats rations were about equal.

The pigs fed the corn-oats mixture during the entire period or the period from 100 to 200 pounds averaged from 0.11 to 0.14 inches less in backfat than those fed corn during similar periods. This resulted in more number 1 hogs in these groups.

Summer trial

Table 4 summarizes the results of feeding different levels of corn and oats to growing pigs. The two groups of pigs which were fed all corn or 2 parts of corn to 1 of oats as the cereal grain porition of their ration gained at approximately the same rate. This was true during both the early and later growth phases. When the oats in the ration was increased to give a corn to oats ratio of 1:1 or 1:2 there was a slight decrease in rate of gain during the period from weaning to 100 pounds. However, from 100 to 200 pounds the pigs gained as rapidly as did the other groups.

The feed efficiency of all groups was very uniform. This resulted in very little difference in feed cost between the various treatments.

The results of these two trials indicate that high quality oats may replace up to one-half of the corn in a ration for growing-finishing pigs without materially effecting rate or efficiency of gain.

Table 3. Results of Feeding Corn and Corn-Oat Mixtures to Pigs (January 31 to May 23, 1957)

	Corn	Corn to 100 lb. Corn-Oats 100 to 200 lbs.	Corn-Oats to 100 lbs. Corn 100 to 200 lbs.	Corn-Oats
No. of pigs	10	10	10	10
Av. initial wt., lbs.	29.6	29.5	29.5	29.5
Av. final wt., lbs.	204.8	203.4	206.9	204.1
Av. da. gain to 100 lbs.	1.53	1.53	1.45	1.42
Av. da. gain 100 to 200 lbs.	1.88	1.77	2.03	1.87
Av. da. gain, initial to 200 lbs.	1.71	1.66	1.75	1.66
Feed/cwt. gain, lbs.	365	347	349	363
Feed cost/cwt. gain	$ 9.46	$ 8.97	$ 9.02	$ 9.38
Av. live probe, inches	1.63	1.52	1.65	1.51
Market Grades				
No. 1	5	7	4	8
No. 2	5	3	6	2

Table 4. Results of Feeding Different Amounts of Oats to Growing Pigs in Dry Lot

	Ratio of Corn to Oats in Ration			
	1:0	2:1	1:1	1:2
No. of pigs	12	11*	11*	12
Av. initial wt., lbs.	39.6	40.4	40.3	39.6
Av. final wt., lbs.	205.3	204.3	204.5	206.1
Av. da. gain to 100 lbs.	1.49	1.48	1.41	1.32
Av. da. gain 100 to 200 lbs.	1.76	1.78	1.75	1.74
Av. da. gain, initial to 200 lbs.	1.65	1.65	1.61	1.56
Feed/cwt. gain, lbs.	373	364	371	366
Feed cost/cwt. gain	$ 9.69	$ 9.40	$ 9.58	$ 9.46

* One pig died of causes not due to ration treatment.